Mission Tools Suite (MTS)

HS3 Step-by-Step Instruction Guide – Year 2013

http://mts.nasa.gov/group/hs3/

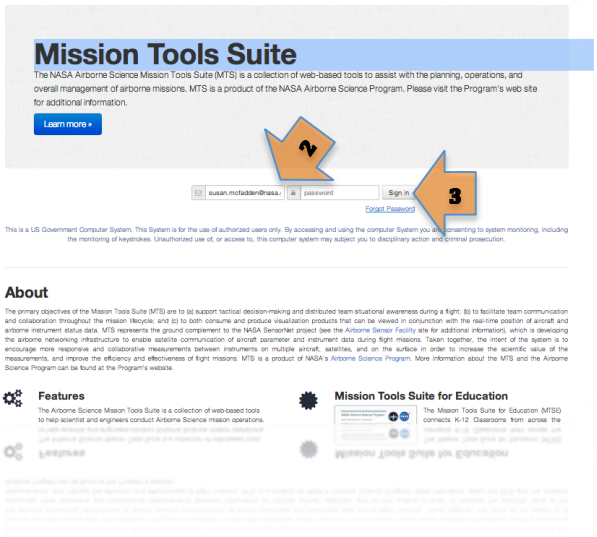
Sign On

New Users: Request an Account

1. From your browser, link to MTS http://mts.nasa.gov but if you have an account it is better to go to http://mts.nasa.gov/group/hs3 for the HS3 configuration
2. Scroll down and click on Request an Account
3. Inside the email, mention you are part of the HS3 Mission

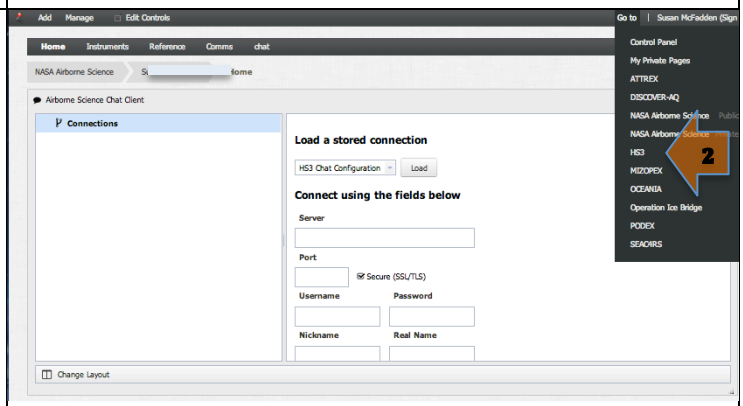
Link to the HS3 Workspace

- The HS3 Workspace includes various tools for communication such as message board, bookmarks, and documents for the HS3 site members to share information
  1. From your browser, link to the HS3 Configuration at **http://mts.nasa.gov/group/hs3/**
  2. Type in your Username (email address) and Password
  3. Click **Sign In**



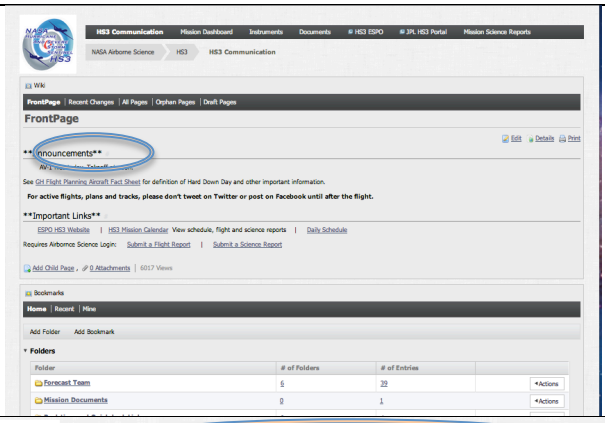
Alternatively, if you log in to your own workspace (without HS3 in the link), you can load the HS3 Workspace by:

1. Click on **GO to** in the upper right corner
2. Select ***HS3*** for the HS3 workspace



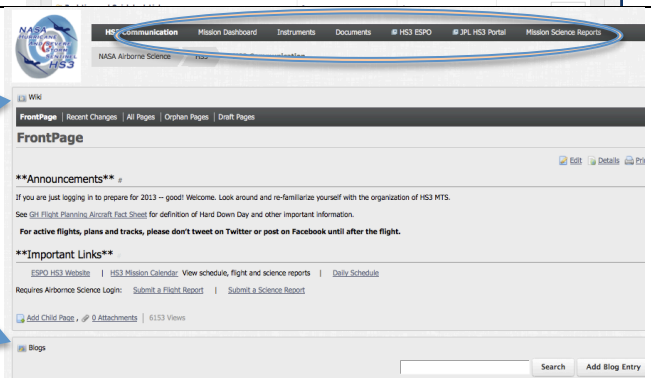
FYI: HS3 Workspace

- The HS3 Workspace default is the Communication Tab. This is where you can quickly see any important announcements and scroll down to see latest postings on the Blog.



FYI: HS3 Workspace

- The Tabs in the HS3 Workspace include:
  - Communication
    - Wiki
    - Blog
    - RSS
    - Bookmarks
    - ASP Mission Calendar
    - Message Boards
  - Dashboard
    - Monitor Map
    - Chat
  - Instruments
  - Documents
  - HS3 ESPO Link
  - JPL HS3 Portal Link
  - Mission Science Reports Link



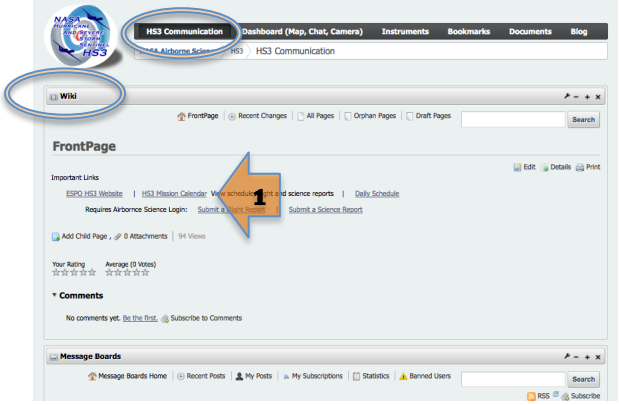
HS3 Communications Tab - Wiki

Find Important Info on Wiki

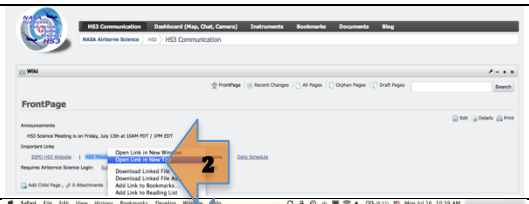
- The Communication Tab, is for sharing information like announcements and important links. When you launch the HS3 Workspace in MTS, you'll be able to read about the current status and get to important links such as the ESPO website, daily schedule and calendar.

  1. Right-click **HS3 Mission Calendar** (or Control-click for Mac)

- If you don't right-click, the default is to replace your MTS browser session.

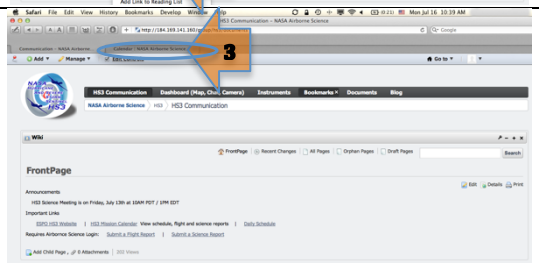


  2. Select **Open Link in New Tab** (or open in New Window or whatever choice your browser provides)



  3. Click on the new Tab

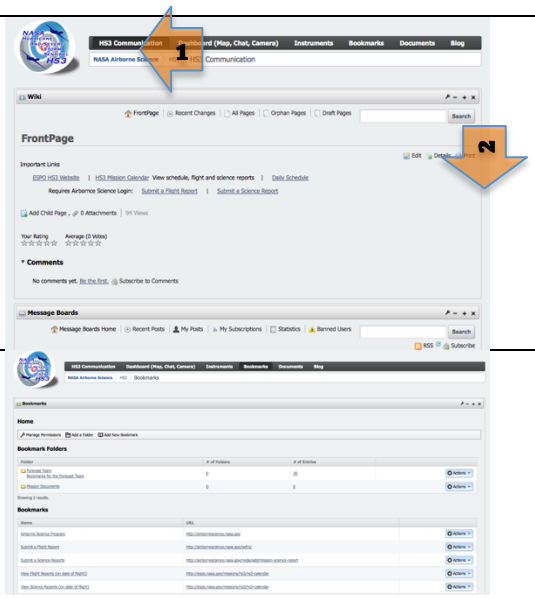
- It is recommended to keep these two tabs/windows open so you can easily switch between MTS and the ESPO Calendar (for updated schedules and links to filed flight and science reports)



HS3 Communications Tab - Bookmarks

Bookmarks

1. Click on the tab for **Communications**
2. Scroll down past the Wiki and Blog section until you see the Bookmark section

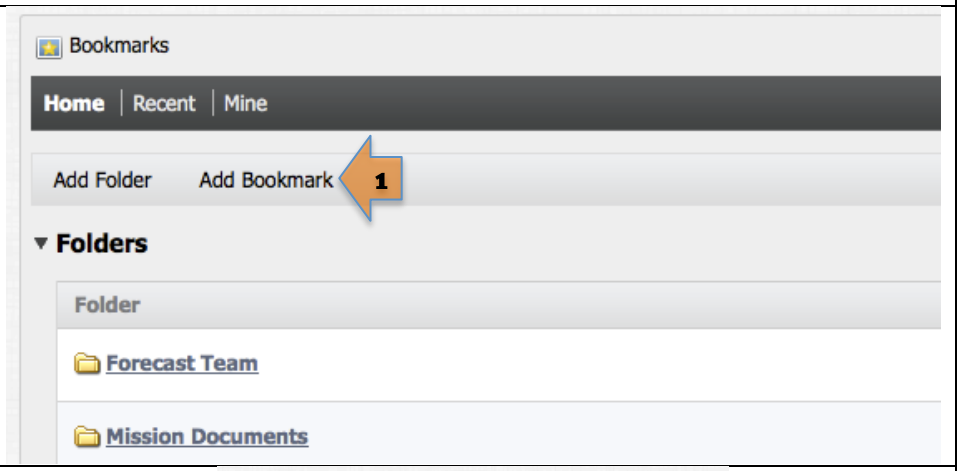


1. Right-click (or Control-click for Mac) on a link to open in another browser tab or window and keep Mission Tools Suite open.

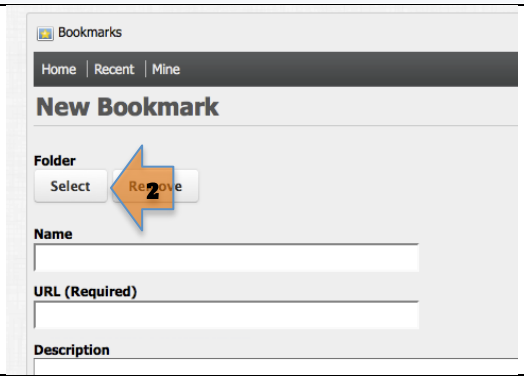
➢ Or click on a link (which will replace your current browser)

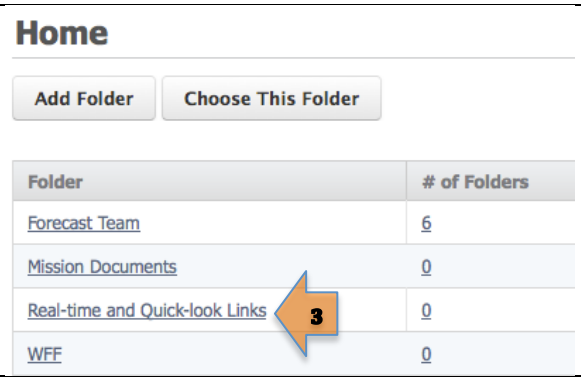
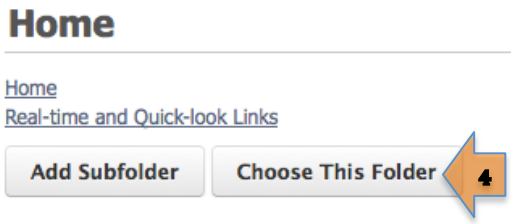
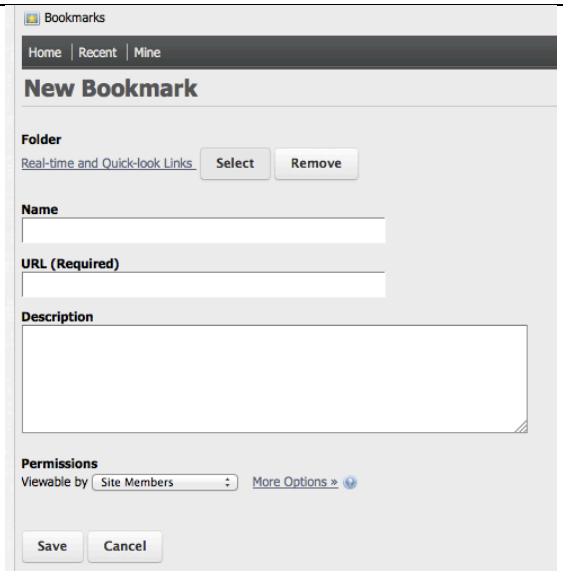
Add a Link for a Quick-Look Image

1. Share a link by clicking on **Add Bookmark**
   ➢ You may have to scroll down to the bookmark section whenever the screen refreshes



2. Click on **Select** to select which folder to put the bookmark



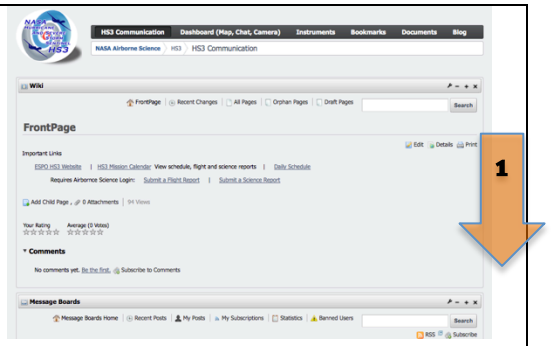
3. Click **Real-time and Quick-looks** Links	
4. Click on **Choose This Folder** on the pop-up	
5. Enter a name for the bookmark such as HAMSR Quick-looks 6. Enter the url for the location you will be storing your Real-time or Quick-look data (NOTE: If you do not have a place to store these, you can put them in a MTS folder and MTS provides a **Get URL** feature to copy the url that you can paste here.) 7. Click **Save** ➢ The default is viewable by HS3 members ➢ Add a description if needed	

HS3 Communications Tab - Blog

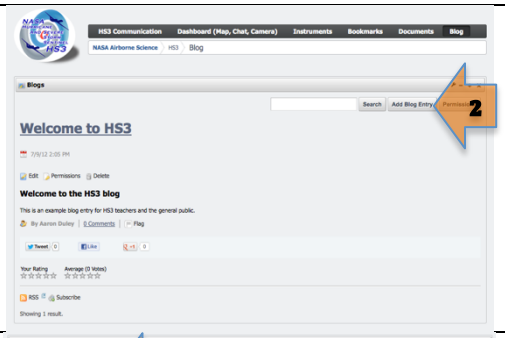
Mission updates posted on Blog

- Blog entries are useful to share important information that may be lost in chats. For example updates on landings and runways will be posted here. It is useful when starting your shift to check the blogs and chat history to get up to date on recent happenings. Blog entries may be reviewed by PAO (Public Affairs Office) and may be reposted on the NASA Hurricane Twitter or Facebook.
  1. Scroll down in the Communications tab to the **Blog**

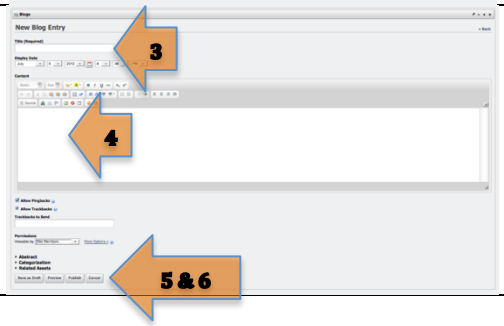
(The Blog is after the Wiki.)



2. Click **Add Blog Entry**



3. Enter Title
4. Enter formatted content for lay person with capitalization and correct spelling
5. Click **Preview** as needed
6. Click **Publish** when ready to post

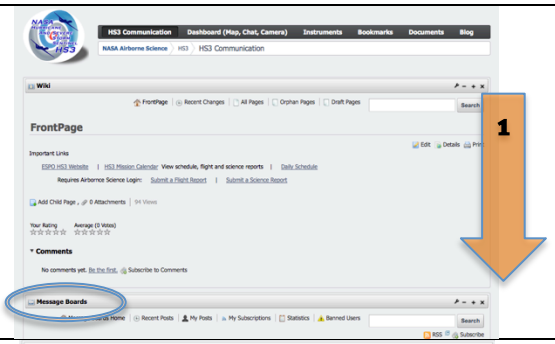


HS3 Communications Tab - Message Boards

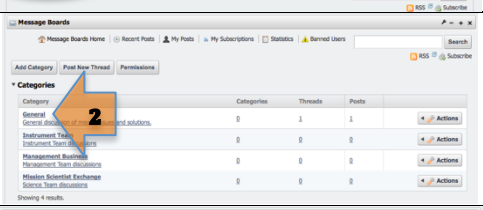
Message Boards

- Used for discussion with other shifts, to communicate issues, provide instructions….

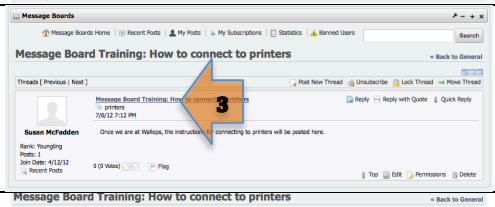
1. Scroll down to view Message Boards



2. Click on the **General** Category

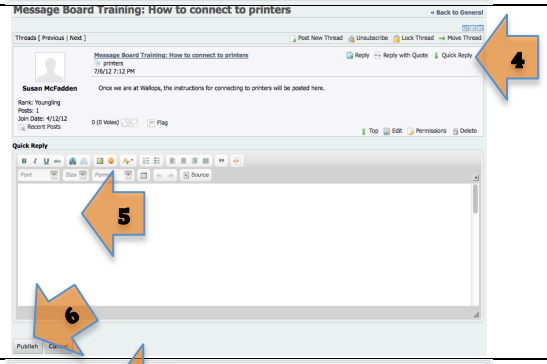


3. Click on the "**Message Board Training: Test Post**" Thread

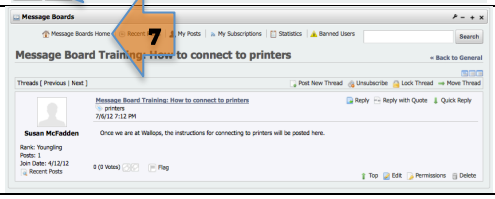


4. Click on **Quick Reply** on any post
5. Type a reply like "**testing**"
6. Click on **Publish**

- FYI: Instead of using Quick Reply, you can click on Reply for full features like attaching files…



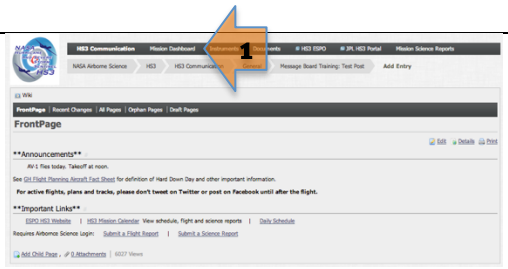
7. Click on **Message Boards Home** to return and see all Message Board Categories



Mission Dashboard Tab

Map

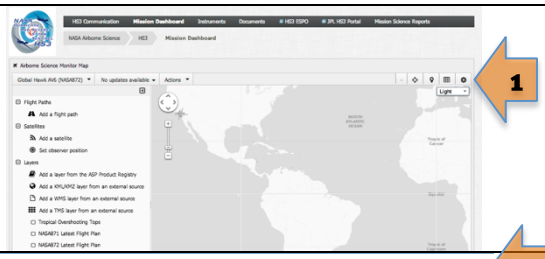
1. Click on the **Mission Dashboard** Tab



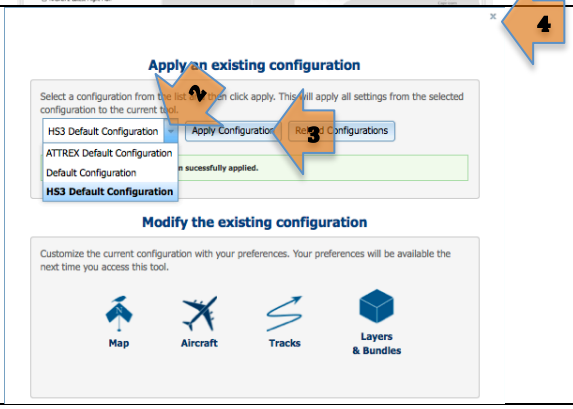
- All tabs are at the top of the page so you may have to scroll to the top
- If you get a message "A configuration has not yet been applied. Would you like to apply one now?" do apply the HS3 configuration.

Apply HS3 Config to the Monitor

- The HS3 Default Configuration includes the Global Hawk and typical layers.
  1. Click on the Gear Icon



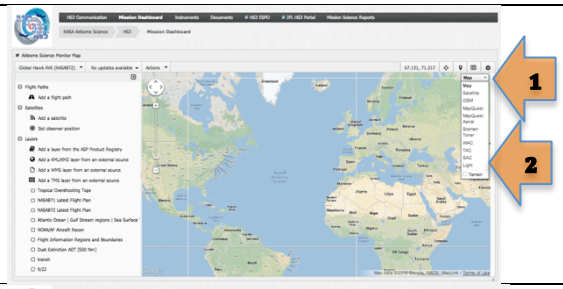
2. Click the pull down and select **HS3 Default Configuration**
3. Click **Apply Configuration**
4. Click **x** to close the window



NEW Base Layers: Change the Base Layer

1. Click on the pulldown for **Map**
2. Select Light (useful when viewing a lot of overlays)

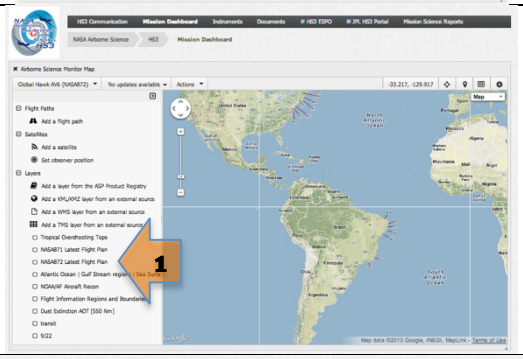
➢ Try the others to see what they look like



Show the Latest Flight Plan

➢ Click on the check box for the **NASA872 Latest Flight Plan**

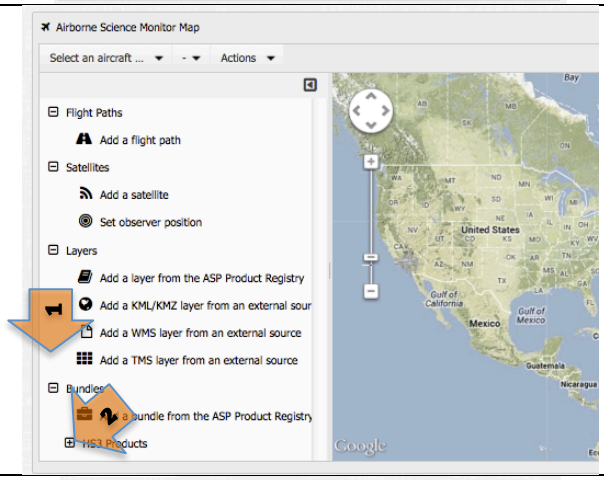
➢ Flight plans will always be loaded to the same file location in MTS Documents to make it easy to view here in the map



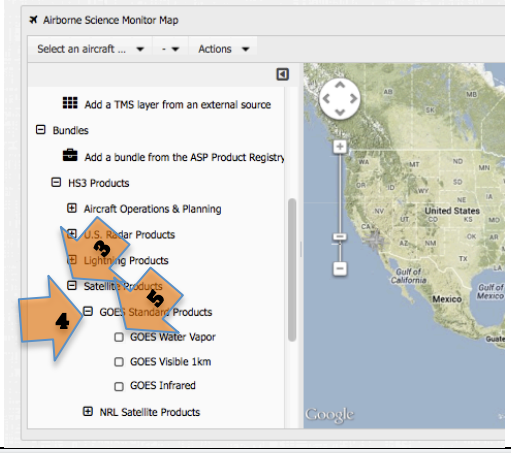
View an Overlay

➢ Layers considered useful for HS3 are pre-loaded in the configuration so you only have to click on the checkbox to view.

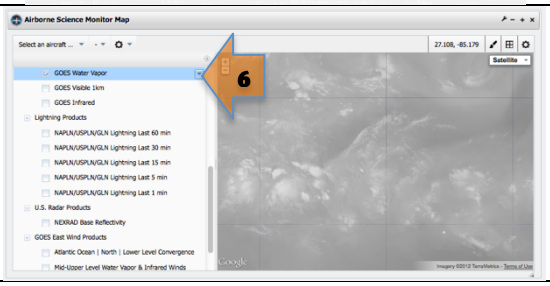
1. Scroll down to view items under Bundles
2. Click on the plus sign by **HS3 Products** to expand the list



3. Click on the plus sign by **Satellite Products** to expand the list
4. Click on the plus sign for **GOES Standard Products**
5. Click on the check box for the **GOES Water Vapor**

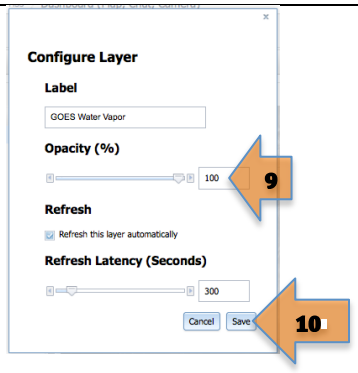


6. Hover your cursor over **GOES Water Vapor** until a down arrow icon appears which will provide actions we can apply
7. Click on the down arrow
8. Select **Configure**



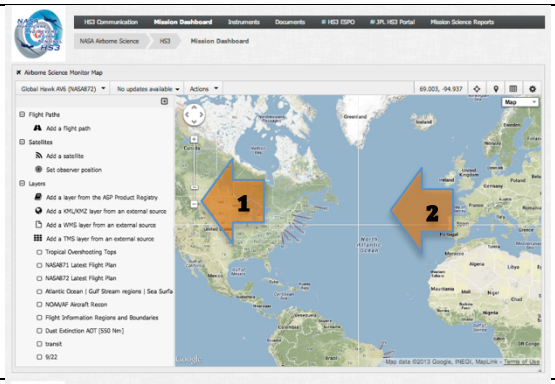
9. Either click on the Opacity line or enter 75 instead of 100
10. Click **Save**

- This will change the translucency to show the map below for perspective.
- If you do not see the down arrow, you may need to adjust the width of the windows. Put your cursor on the line between the windows until the resize icon appears and drag to make the index area larger.



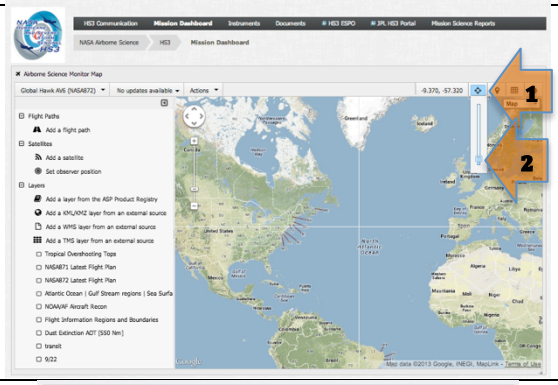
Map Adjustments

1. Click on the **negative sign –** to zoom out or drag the slider bar
2. Click on the map, hold your cursor down and drag the map to move it



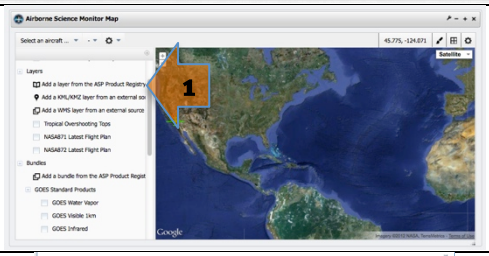
- NEW: Setting the map to a consistent magnification

1. Click on the **diamond sign –** to display the sliding bar and drag to a number

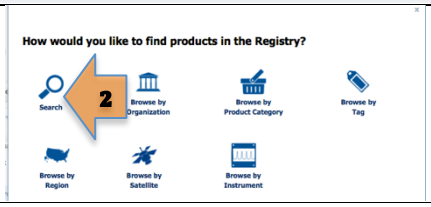


Add an Overlay

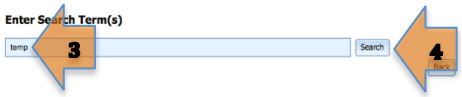
1. Select **Add a layer from the ASP Product Registry**



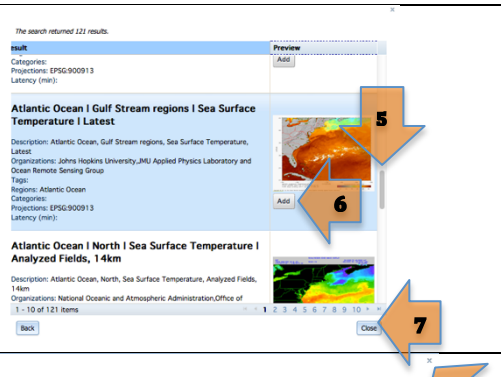
2. Click on the **Search** icon



3. Type in **temp** to search for products with temperature
4. Click the **Search** button

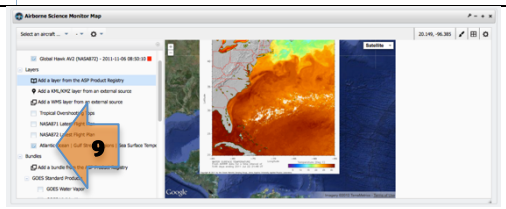


5. Scroll down and find **Atlantic Ocean | Gulf Stream regions | Sea Surface Temperature | Latest**
6. Click the **Add** button
7. Click the **Close** button



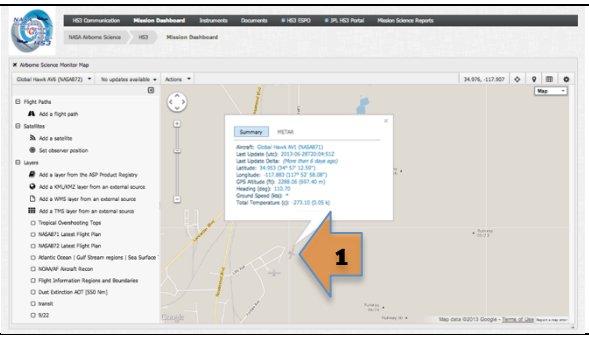
8. Click **X** to return to the Map

9. Uncheck to remove image from map or hover over text in the index until arrow pull-down appears and select delete to eliminate it from the index if you find it is not useful



- Contact ESPO if there are layers helpful to include as part of the HS3 Configuration for all HS3 team members to see.

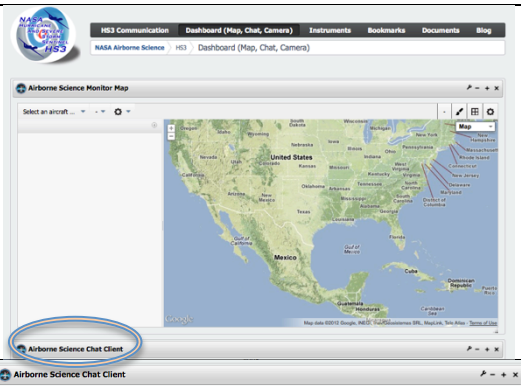
1. Click on any plane icon to view latest info
   - Planes are grey when not active and green when active



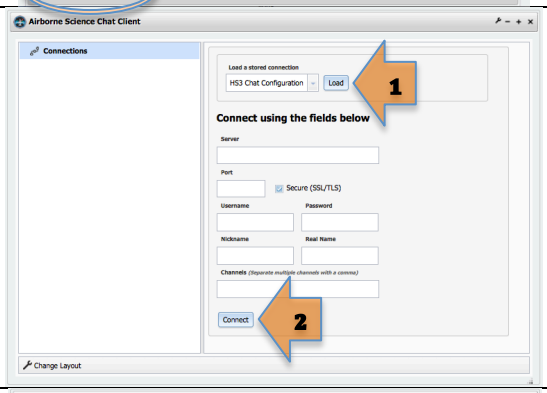
- COMING SOON: There will be looping layers with controls to Play and Stop an animated layer. You can select the animation length like 6 hours and adjust the animation speed. Depending on the length, it may take some time for the pictures to be loaded. Once loaded they will be displayed in a repeating loop.

Chat

- Below the Map is the Chat Client for group and private chats
- NEW: When you log into MTS, you will be able to see chat history (24-36 hours) and catch up on what has been happening.

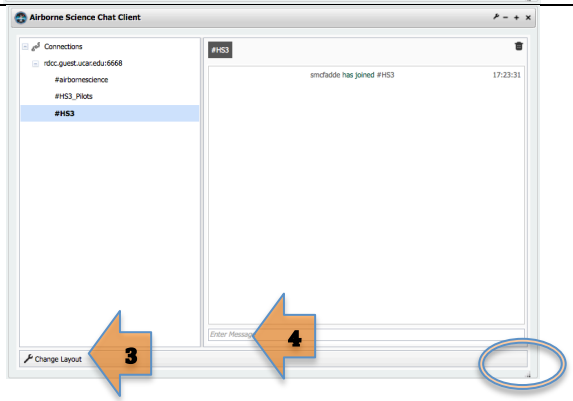


1. Click on **Load** to prepopulate the fields with your default info
2. Click on **Connect** to join the HS3 chat channel

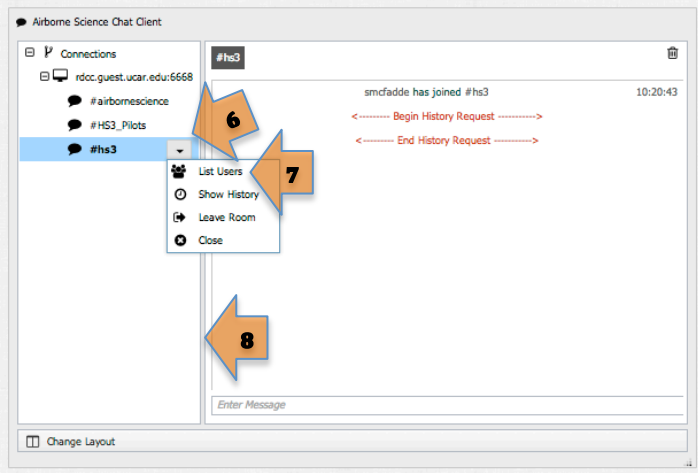


3. Click on **Change Layout** to cycle between the different views
4. Type **hello** and hit enter
5. Change the size of the Chat Window by clicking on the bottom right corner till the dragging icon appears and click and hold until to the size you want.

- You can resize many of the other tools like the Monitor by dragging the bottom right corner or by putting your cursor on the line between windows.

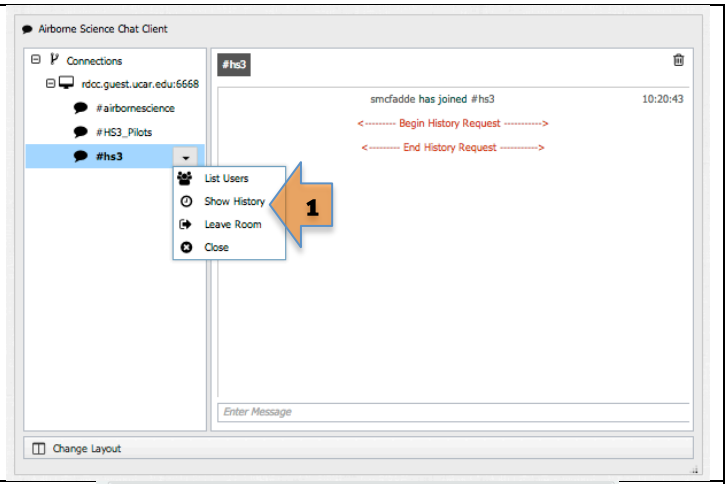


6. Hover on the name of the chat channel
7. Click on **List Users**
8. If you do not see the down arrow, you may need to adjust the width of the windows. Put your cursor on the line between the windows until the resize icon appears and drag to make the index area larger.

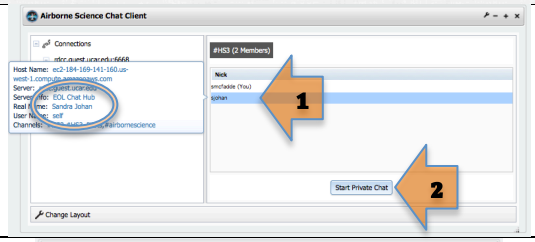


1. NEW: Click on **Show History** to see 24-36 hours of chat before you logged back in

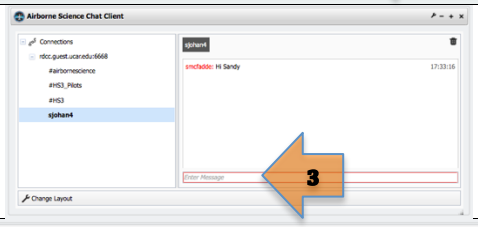
➢ NEW: The chat client is on the same tab as the Mission Dashboard Map so when you are looking at the map any new chats will pop up for a few seconds in the lower right so you won't miss any chats.



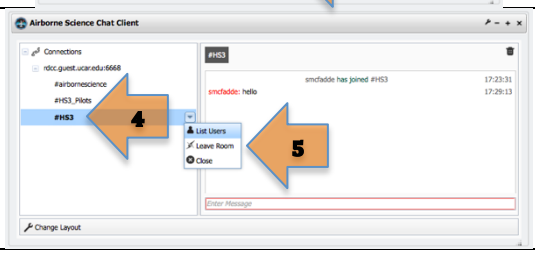
1. Double-Click on a userid and their real name will be displayed
2. Click on **Start Private Chat**



3. Type hello and hit enter



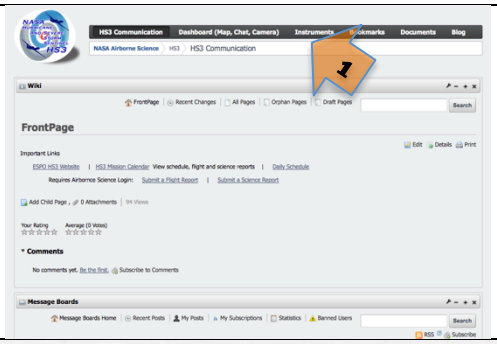
4. Hover on the name of the chat channel or private chat
5. Click on **Leave Room**



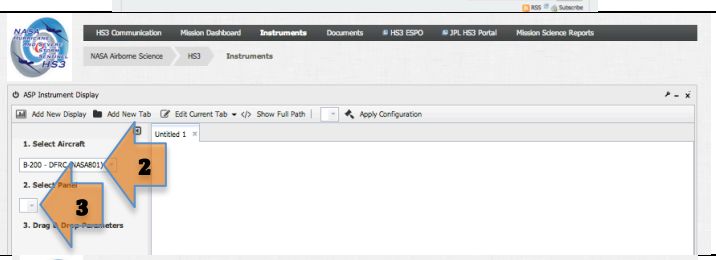
Instruments Tab

NEW Interface: Instruments

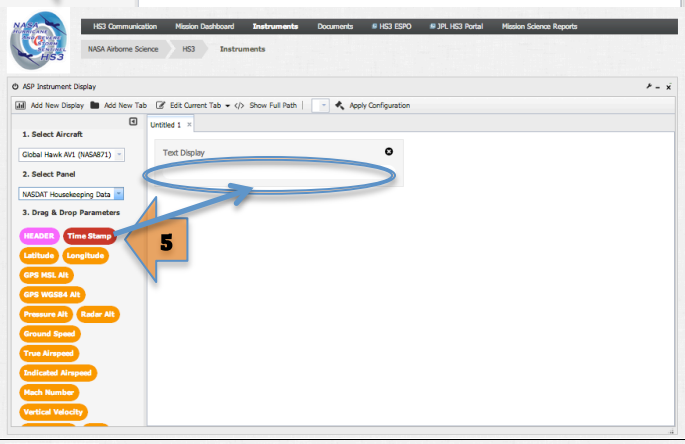
1. Click on the tab for **Instrument**



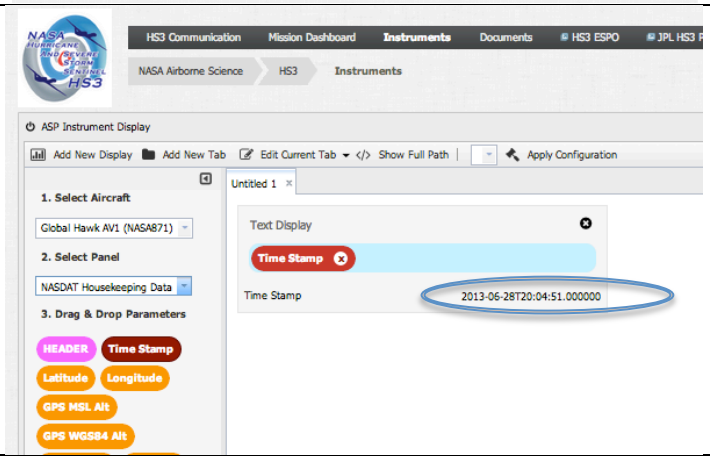
2. Click pull down for **Select Aircraft** and choose **Global Hawk AV1**
3. Click pull down for **Select Panel** and choose **NASDAT Housekeeping Data**



4. Drag Time Stamp to area circled. This area will highlight in blue when your cursor hovers over it.



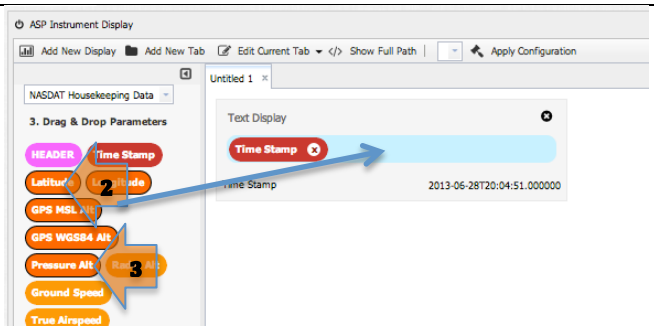
➢ You will see the value of the parameter displayed in the text display.



To add a group of parameters:

1. Click on Latitude
2. Hold down your **shift** key
3. Click on Presure Alt to select all parameters in between
4. Drag all 5 to blue plot area

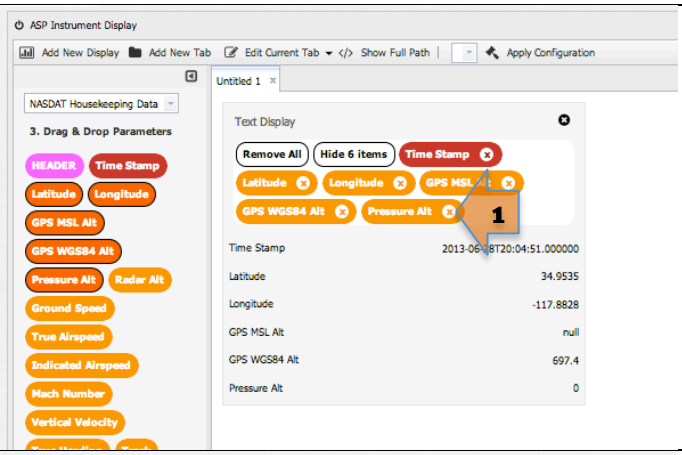
➢ To add selected parameters: Click on a parameter, hold down your **command** key, click on additional parameters and they will highlight. You can then drag the selected items to the blue plot area.



To remove a parameter

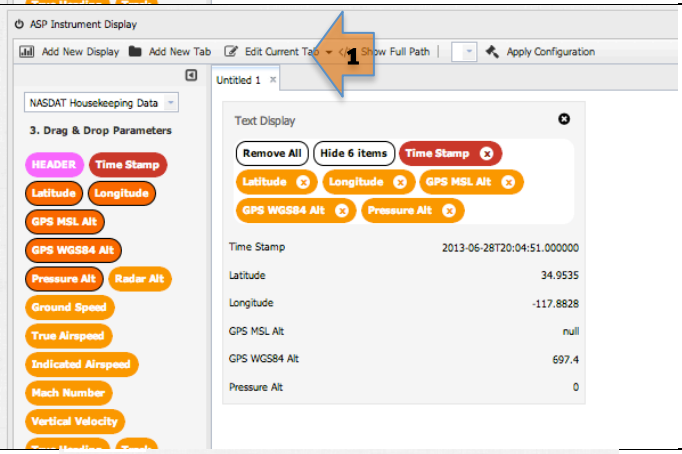
1. Click on the x by the parameter name

➢ If the parameter names do not show up, click on **Show Items**

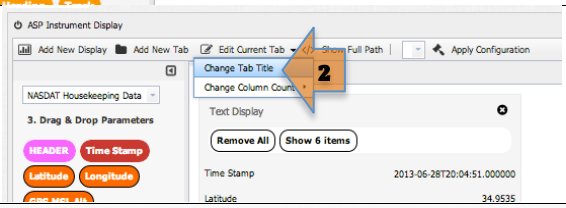


To change the title for the display

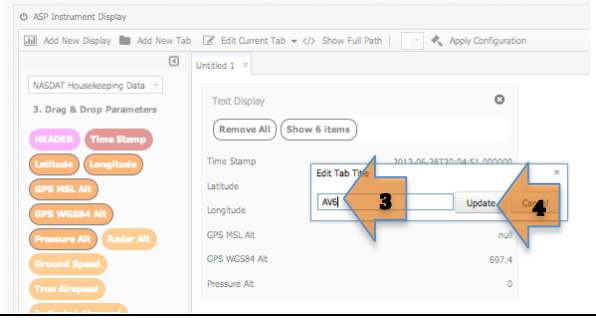
1. Click on **Edit Current Tab**



2. Select **Change Tab Title**

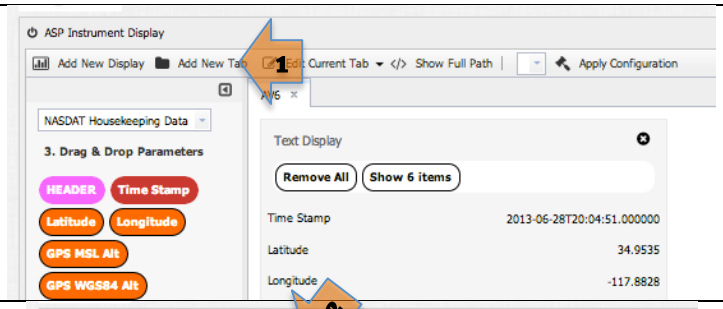


3. Type in **AV6**
4. Click on **Update**

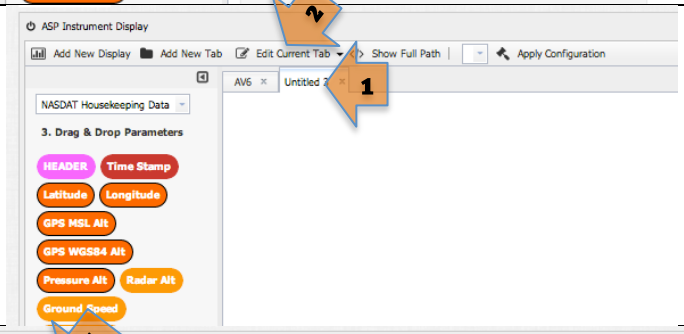


Add a new tab

1. Click **Add New Tab**

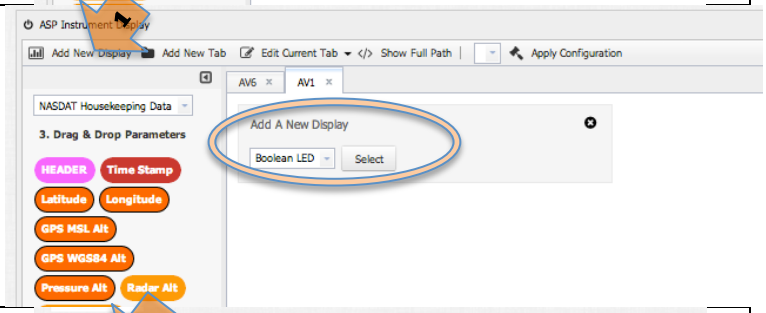


1. Click on the new tab
2. Edit Current tab and rename to AV1

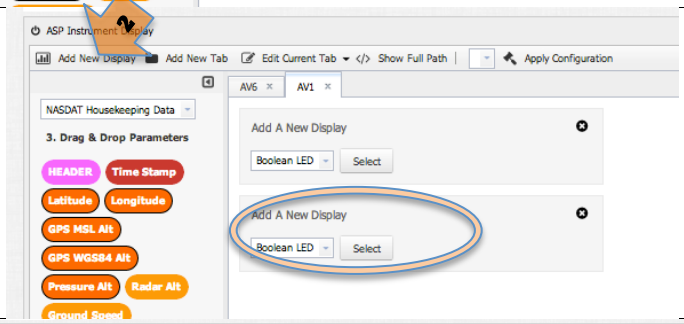


Formating the display

1. Click Add New Display

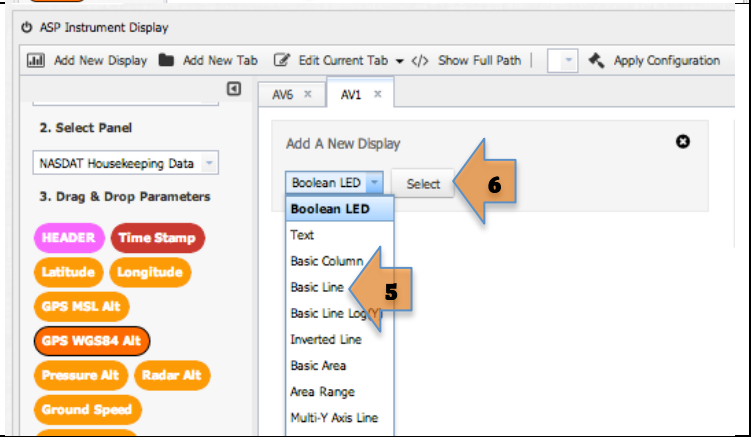


2. Click Add New Display again and a second display will appear

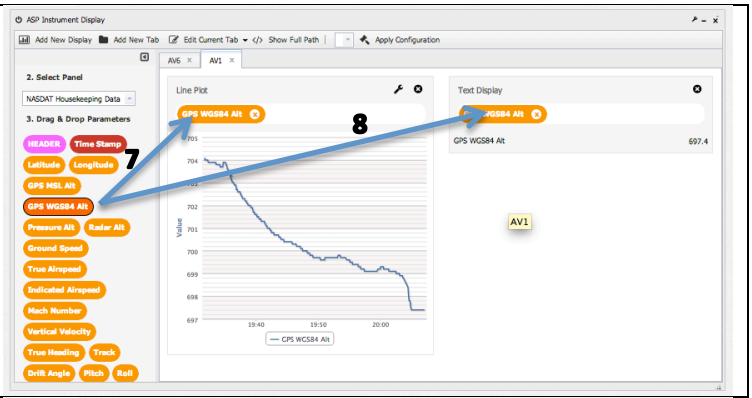


3. Drag the new display window from below to the side
4. Select the pulldown for the type of display

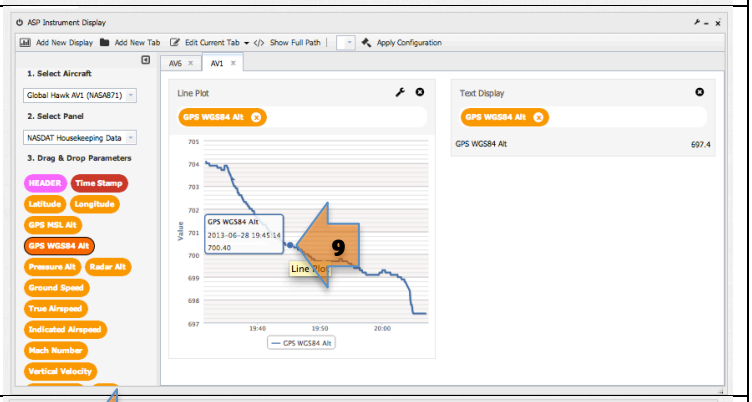
5. Select **Basic Line**
6. Click on **Select**



7. Drag **GPS WGS84 Alt** to the Line Plot blue plot area for a line chart
8. Drag **GPS WGS84 Alt** to the Text Display blue plot area which will show the current Altitude

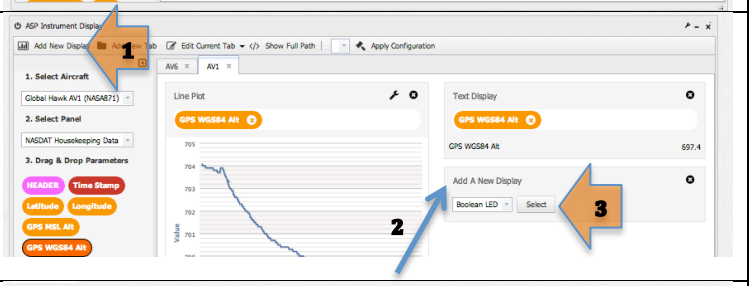


9. Position your cursor anywhere on the line graph to display the pop up with more details

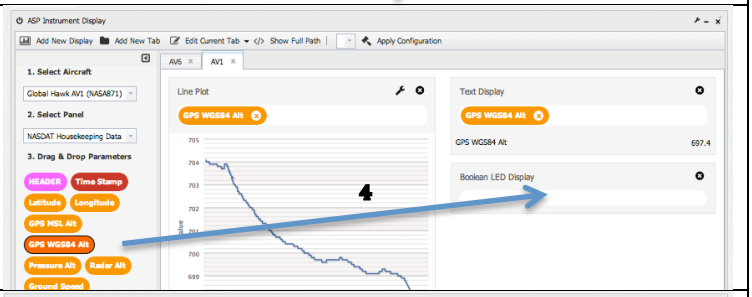


Adding an indicator

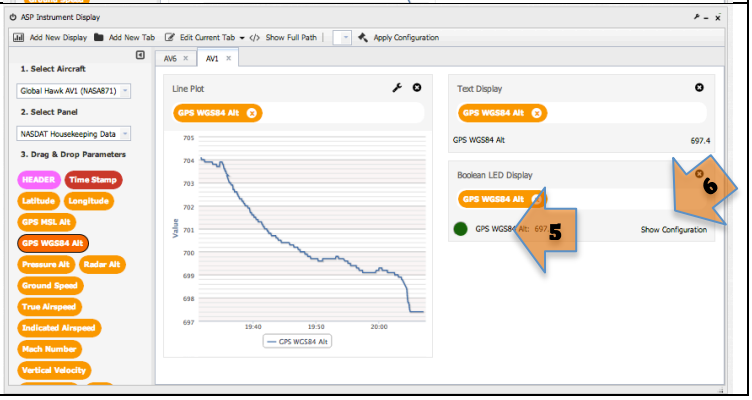
1. Click on **Add New Display** (it will show up under the Line Plot in the first column)
2. Drag to under the Text Display in the second column
3. Click **Select** for Boolean LED as the type of display

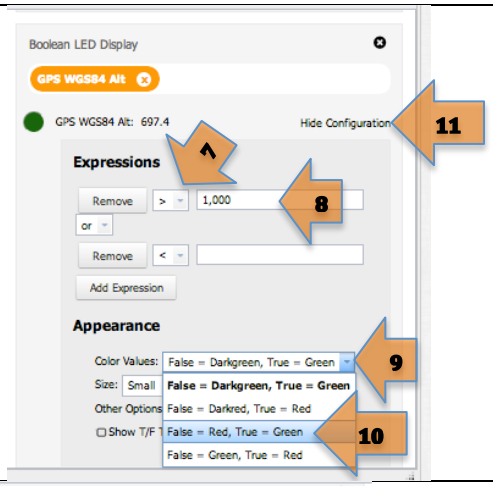
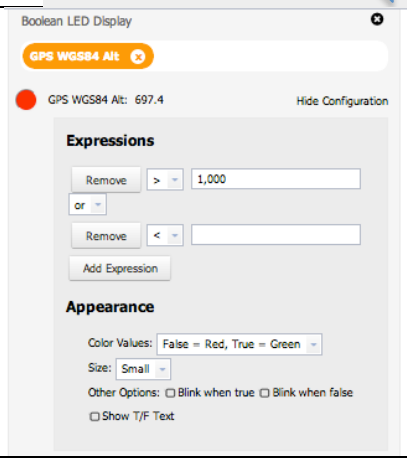


4. Drag **GPS WGS84 Alt** to the Boolean LED Display blue plot area



5. Click on the **parameter** in the Boolean LED Display and Show Configuration will appear
6. Click on **Show Configuration**

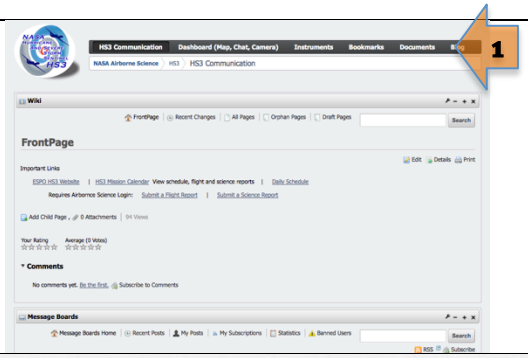


7. Select the pulldown for the sign and choose greater than **>** 8. Type in **1000** 9. Select the pulldown for color values 10. Select **False=Red, True=Green** 11. Click on **Hide Configuration**	
➢ Add as many parameters and expressions as you like for your dashboard view ➢ For example greater than 1000 but less than 20000 ➢ Select Size of **Medium** or Large for critical parameters ➢ Select **Blink when True** for critical parameters ➢ Select checkbox for **T/F Text** if colors are not easily discernable	
➢ Experiment with the different display types. For example, Circular Gauge provides a nice graphic or Multi-Axis Line Plot to plot more than one parameter. ➢ If there are layouts, parameters, expressions that would be useful to all, let ESPO know and we can define an HS3 configuration to share with all.	

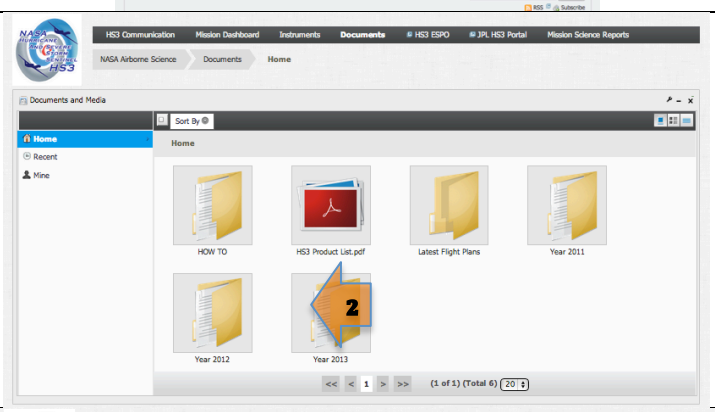
Documents Tab

Mission Files are stored in Documents

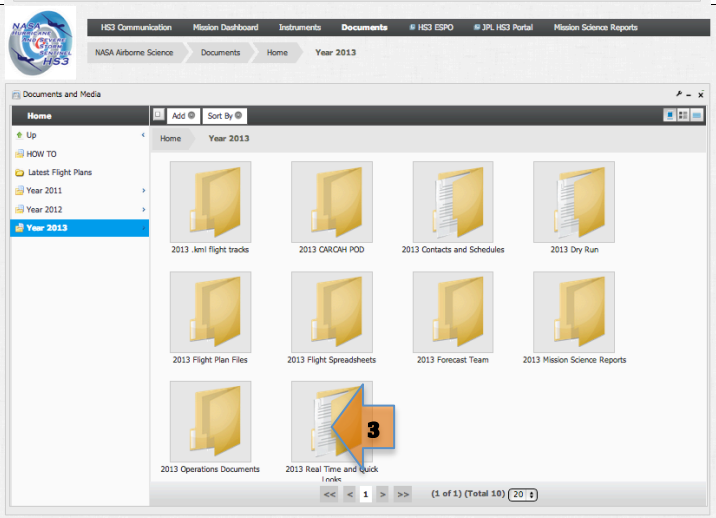
1. Click on the tab for **Documents**



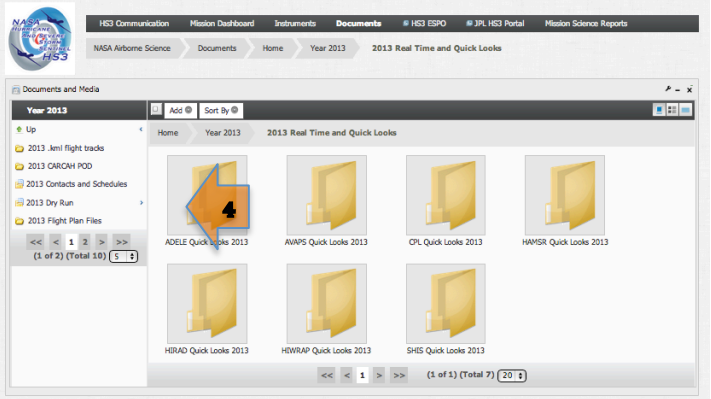
2. Click on **Year 2013**



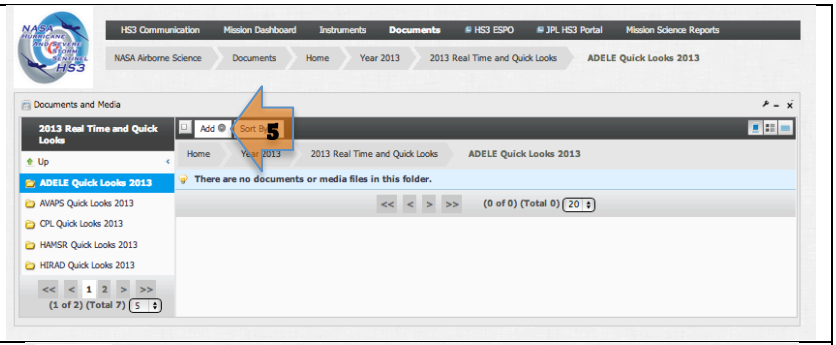
3. Click on the **2013 Real Time and Quick Links**This is where you can store screen shots from the MTS Instrument tab.



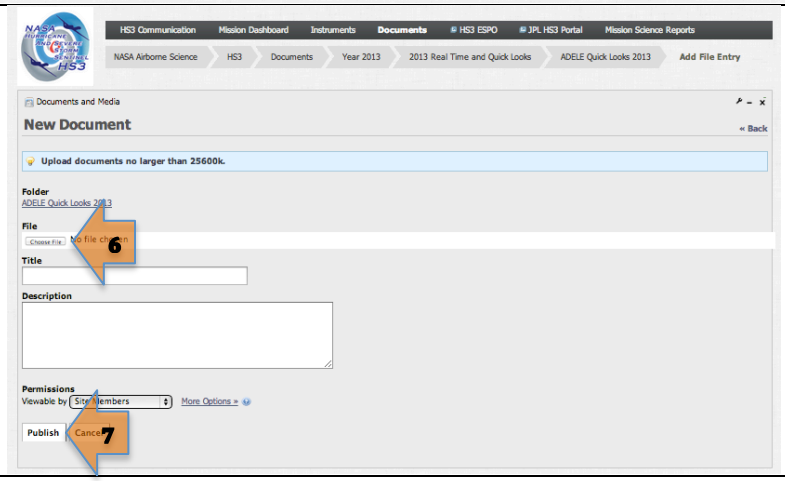
4. Click on **ADELE Quick Looks 2013**



5. Click the **Add** button and select **Basic Document** to add a file



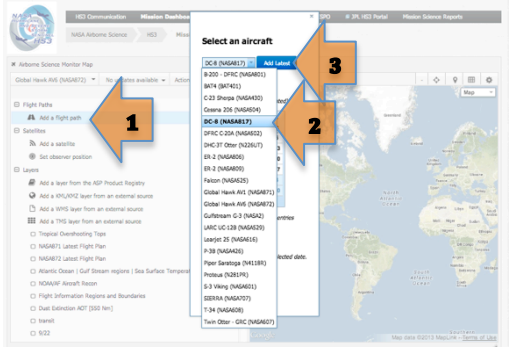
6. Click **Choose File** and navigate to the file on your computer and select it.
7. Click Publish to upload the file to MTS



Additional Features:

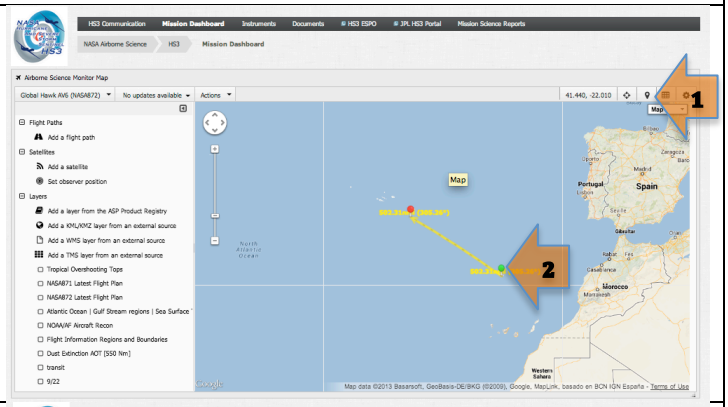
Add an Aircraft

- This is useful to watch participating aircraft. For 2013 SEAC4RS planes (DC8 and ER2) will be participating and added to the HS3 Configuration.
  1. From the Mission Dashboard tab, click on ***Add a flight path***
  2. Click on **Select an aircraft**
  3. Select a plane such as ***DC-8***
  4. Click on ***Add Latest***

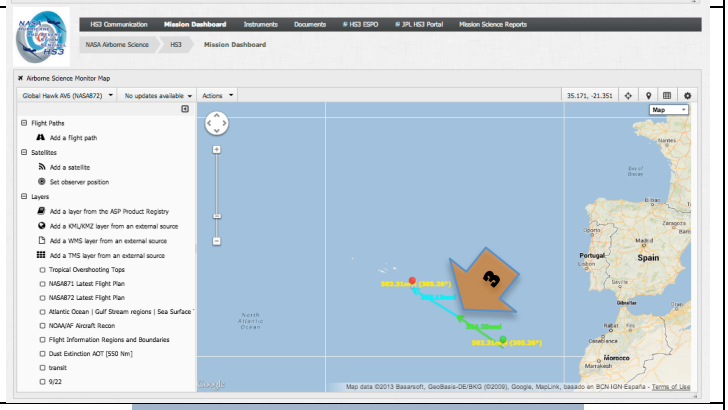


NEW Interface: Measure a Distance

1. Click on the Bubble Icon and a green dot for the start and a red dot for the end will appear on the map along with the distance in nautical miles and the current heading.
2. Click and drag a dot till the X is on the point you want

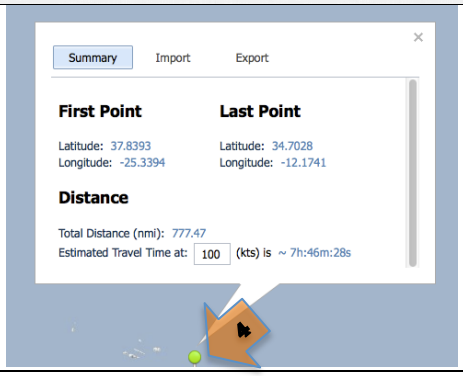


3. Click on a position between the dots and the distances to that point are displayed



4. Click on a dot to view more detail information on Latitude and Longitude
5. Enter speed in knots to get an estimate of the time needed to travel that segment

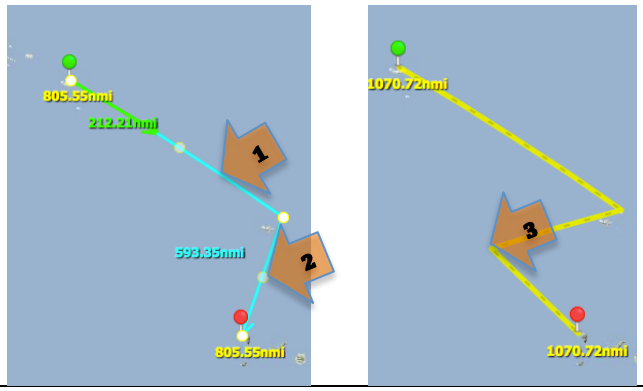
➢ There is a feature to import and export waypoints. Documentation on this feature will be posted on the MTS website soon.



NEW: Add a Segment to the Middle

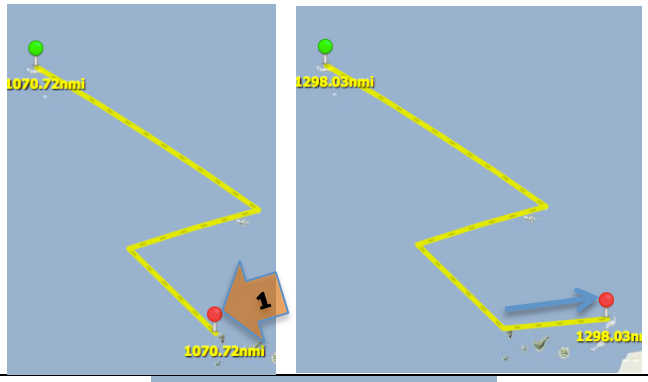
- Works with Safari and Firefox browsers but not Chrome)

1. Hover on the line to see white control circles appear
2. Drag one of the white circles to a new area to get additional segments to the line



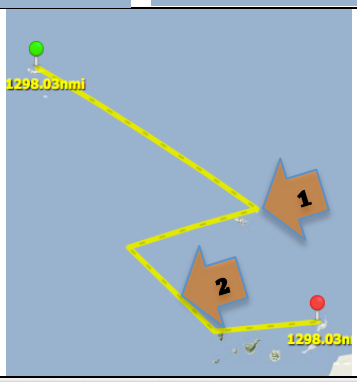
NEW: Add a Segment to the End

1. Hold the Shift key and drag an end point to get a new segment to appear



NEW: Remove a point or the whole line

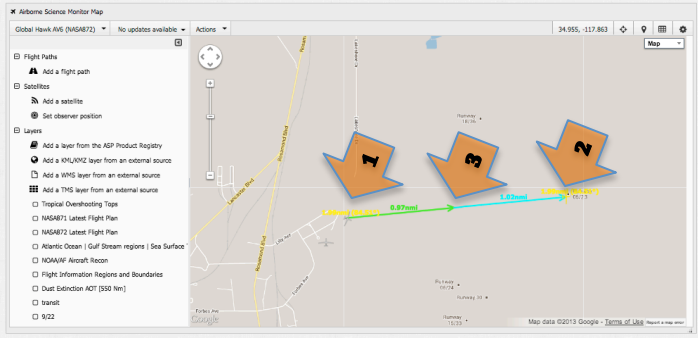
1. Right-click on an point to remove the junction
2. Double-click on the line to remove the whole line



NEW: Measure Plane Movement

1. Click on a plane
2. Drag to the position you want to measure and a line will appear with start and end points

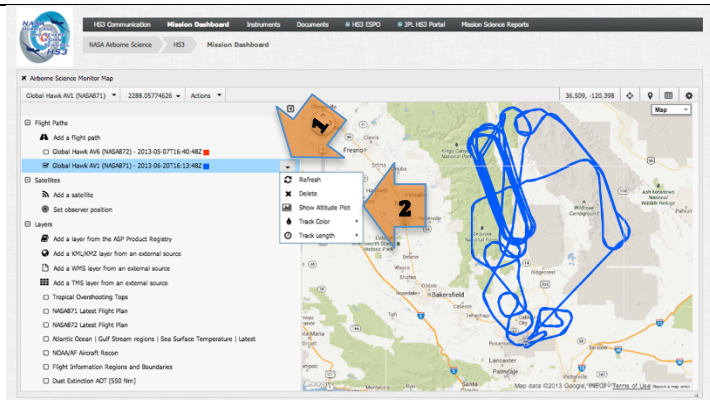
- If there is a ground speed available, the estimated time to the destination end point will be calculated. May be helpful to know when Global Hawk will get to the end of the lawnmower pattern for example.



NEW: Show Altitude Plot

- Current Flight paths will appear in the Map for the planes of interest to HS3 (i.e. Global Hawk, ER2, DC8). In order to perform this step-by-step, you may need to add a flight path.

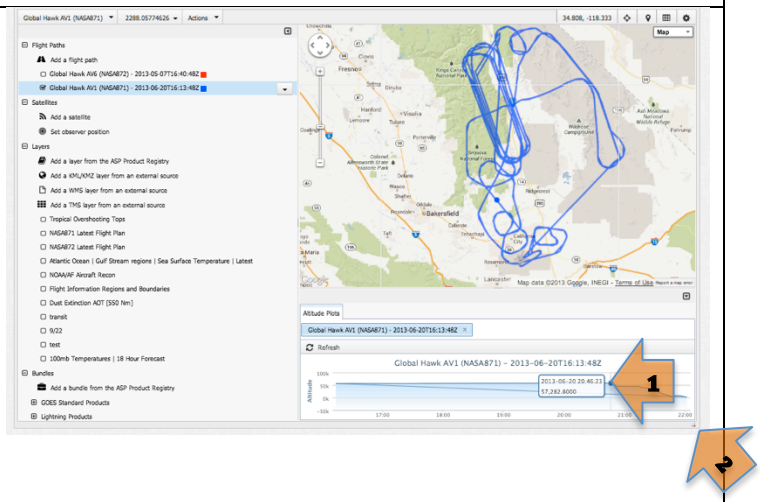
1. Click or hover on a flight path to view the pull down
2. Click on **Show Altitude Plot**



- The Altitude Plot will appear below the map

1. Click at a point in the Altitude Plot for detailed position and altitude information and you will also see a blue dot appear on the map that corresponds to where the plane was on the map
2. You may have to drag the window open by clicking and holding the lower right corner of the map window to view more detail info in the Altitude Plot

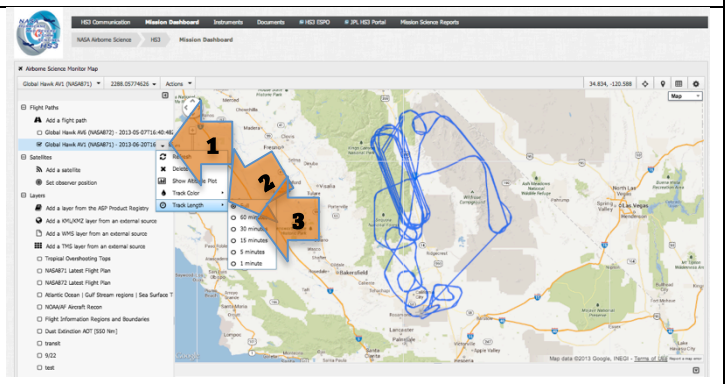
- Move your cursor along the Altitude Plot and watch the blue dot move along the flight path



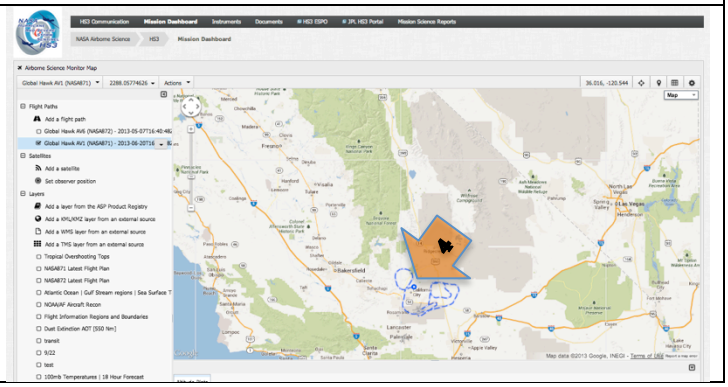
NEW: Show Track Length

- In order to isolate the most recent flight path from a lot of repeat tracks, you can limit the view to the last 60, 30, 15, 5 or 1 minute.

1. Click or hover on a flight path to view the pull down
2. Click on **Track Length**
3. Click on **60 minutes** and the displayed flight path will be reduced



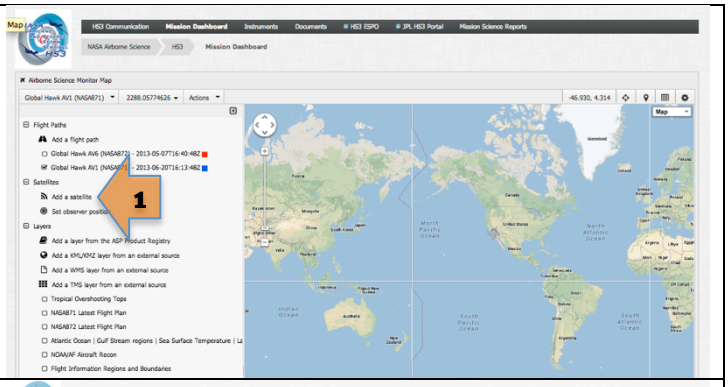
4. Click on the blue dot to get perspective on the whole flight path.



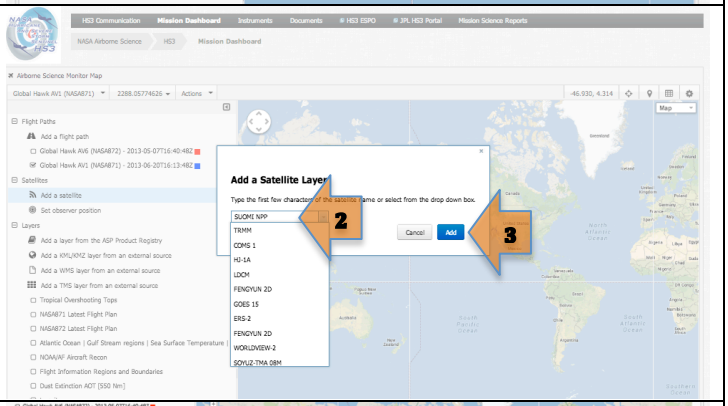
NEW: Add a Satellite

- On some missions there is a need to monitor the position of an aircraft with a passing satellite. Additional documentation on this feature will soon be posted on the MTS website.

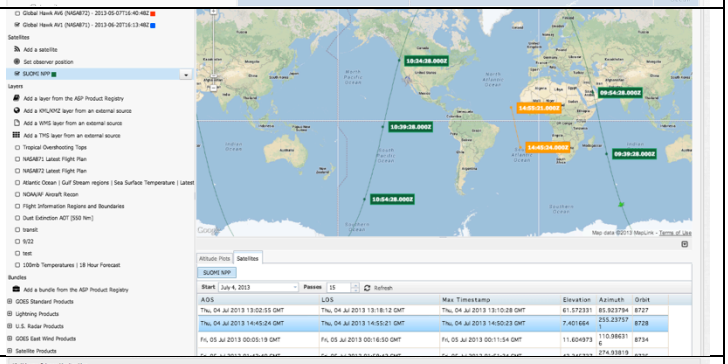
1. Click on **Add a satellite**



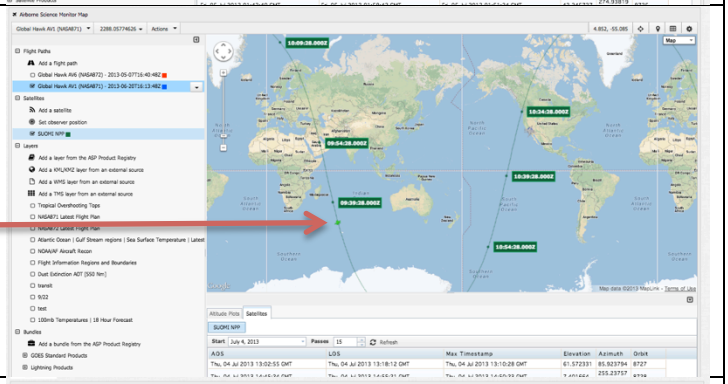
2. Scroll to select a satellite or for example, type in **SUOMI NPP**
3. Click **Add**



- The orbital path will appear on the map and below is a table with Acquisition Of Signal, Loss Of Signal, time stamp, elevation, Azimuth and Orbit
- Hover in the table to display the location in the map



- If you zoom out enough or move the map around, you will be able to see the green satellite icon to show where it currently is located.



1. You can click on the green satellite icon for more information updated every second such as latitude, longitude, velocity, and TLE ephemeris data.

2. In order to compare the satellite to where an aircraft is or where you may be, you can Set the Observer Position